The Controversial Ovary

ALEX CULINER, *M.D.*, Los Angeles

• **Routine removal of ovaries at hysterectomy has been urged as a means of preventing ovarian carcinoma. Proponents of this policy, however, have not submitted the crucial datum: What proportion of women undergoing hysterectomy for benign conditions will later have ovarian carcinoma if the ovaries are not removed. Granting that oophorectomy will effectively prevent ovarian carcinoma, it creates an endocrine imbalance that cannot be corrected artificially, and the lack of ovarian hormones may precipitate osteoporosis or cardiovascular disease. If the ovaries appear normal, if there is no history of carcinoma, and if the patient understands and accepts the risk, the ovaries usually can be conserved at hysterectomy for benign conditions.**

THE QUESTION of whether or not to remove normal ovaries at the time of hysterectomy for a benign uterine lesion revolves mainly about our fear of the possible future development of carcinoma of the ovary. While the incidence of ovarian carcinoma is less than in either the corpus or the cervix, it does occur with sufficient frequency and insidiousness, and with so unfavorable a prognosis, that there would appear to be some justification for oophorectomy in such opportune circumstances as when the uterus is to be removed.

Certainly in young women this additional procedure is generally not acceptable or advisable, but during the climacteric when the ovaries appear to be functionally on the wane there would seem to be some merit in removing them. If, in fact, ovarian function is absent or short-lived after hysterectomy, then there can be no doubt as to the advisability of simultaneously removing both ovaries. In a given case physicians are usually guided, first, by the statistical evidence as to the incidence and likelihood of carcinoma developing in such ovaries, and second, by personal prejudices. These are usually based upon a limited experience, for not many physicians see enough cases of ovarian carcinoma to formulate well-founded and definitive conclusions. Probably almost anyone who has seen ovarian cancer in patients who have had hysterectomy, patients who would probably have been spared this fate if the ovaries had been removed at the same operation, would be easily convinced that oophorectomy is advisable.

The statistical data on the subject are in many respects confusing and subject to misinterpretation. The death rate for carcinoma of the ovary is 16 to 25 per 100,000 in women between the ages of 45 and 64, according to the 1956 published reports of the Metropolitan Life Insurance Company. These data reasonably accord with those cited by Hollenbeck[5] and Randall.[7] Several reports[2,3] indicate that approximately 3 per cent of patients have had operations at which oophorectomy, had it been done, might have prevented the disease. Some investigators regard this as a significant figure and consequently favor routine removal of ovaries incidental to hysterectomy.

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A comparison of current statistics[1,3,7] suggests several things. First, carcinoma of the ovary appears to be significantly more frequent in women who have had previous pelvic operations for benign lesions than in other women of the same age. Second, there is an obvious disparity between probability,[1] incidence[5] and actual mortality rates for ovarian carcinoma[8]; and third, the interpretations indicate certain fallacies in the application of statistics to medical management.

With a death rate about 20 per 100,000 in women between 45 and 64 years of age,[6] we would theoretically prevent something less than two cases of ovarian carcinoma for every 10,000 operations if all of this age were castrated. In one report it is stated,[3] "Yet the fact remains that the incidence of patients in the combined series (2,097 cases) who developed carcinoma after having had initial surgery at the age of 40 or over shows an over-all rate of 3.05 per cent. Is this a significant figure? We are of the opinion that it is."

To say that 3 per cent of women with ovarian cancer have had operations at which oophorectomy would have eliminated the disease, is not the same as saying that 3 per cent of women with hysterectomy will have cancer of the ovary; yet that appears to be the implication in this and similar discussions. If this is not the implication, then the 3 per cent figure loses much of its significance. None of the reports, in fact, state the overall number of women who have had hysterectomy, nor do they list the indications for the operation. While this is obviously difficult to do, nevertheless it is

pertinent to any evaluation of the subsequent risk of carcinoma of the ovaries and the advisability of removing them. If this figure is significant as is implied—if ovarian carcinoma is materially more frequent in women who have undergone hysterectomy—then it must be considered that in these women the removal of the uterus may have contributed to subsequent pathological changes in the ovary. Then, further, the conditions which produced the initial benign uterine lesion may have continued to act unfavorably on the ovaries, or on the other hand uterine activity before hysterectomy may have inhibited ovarian disease which afterward could proceed unchecked.

Obviously, then, this statistical information is not too helpful in deciding whether or not ovaries should be removed at the time of hysterectomy. As a prophylactic measure there can be no question that removal of them will usually prevent ovarian cancer; but whether by removing normal ovaries some other metabolic disease may be precipitated is a matter which must also be considered. We may tend to overlook or ignore the effects of this procedure which manifest themselves in other than the gynecological domain.

I am sure that because of personal experiences, bias or conviction, many surgeons will continue to remove ovaries at the time of operation in women beyond a certain age—drawing the line at 40 years, 45 years, or the menopause. Such arbitrary division is based on the false assumption that chronological age is synonymous with physiological age. The more conservative surgeons may remove one ovary only, in the belief that they are thus reducing the risk of carcinoma by 50 per cent. But very often the wrong ovary might be removed. The ovary with greater function may be enlarged by a corpus luteum or some such physiologic cause indicative of usefulness but may, to the inexperienced, appear to be the one most likely to give trouble, and therefore be removed. Frequently the smaller, corrugated, atrophic-looking ovary with no evidence of recent activity is the one that is left behind, and this may be the potentially malignant one.

As a point in favor of removing ovaries it is generally noted by proponents that menopausal symptoms which may ensue can be adequately controlled with preparations now available. The ability to control symptoms, however, is a far cry from being able to restore a distorted endocrine balance and few physicians, I am sure, would claim any great proficiency in this regard. (Administration of insulin is a prime example of endocrine therapy which fails to prevent secondary disease processes.) If it were true that the endocrine system can be adequately controlled and balanced by hormone therapy, then it would not be necessary to set any specific age limit with regard to removing ovaries, not even the limit of 40 years.

Although menopausal symptoms occur in approximately 25 per cent of women after hysterectomy even when the ovaries are not removed,[9] it does not follow that the ovaries have ceased to function. All that can reasonably be said regarding the menopausal ovary is that it ceases to ovulate and to secrete progesterone rhythmically. Because the normal postmenopausal uterus does not bleed, it does not follow that the ovary is no longer active. The functions of the ovary are altered merely because body needs are altered and to these functions the uterus no longer responds.

If in fact the ovaries do have a function after the menopause, then removing them at age 40 or thereabouts would deprive the average woman, whose life expectancy is now 70 years, of useful organs for not less than a quarter of her existence. Certainly there is increasing evidence of continued ovarian activity beyond the menopause. The osteoporotic changes which occur in oophorectomized patients are noteworthy in this regard. And, according to Griffiths[4] the deleterious effects on the cardiovascular system are so important as to outweigh possible beneficial effects of castration except in exceptional circumstances.

We cannot, then, be dogmatic about this question at present. Individual assessment of each patient will probably yield optimum results. There is undoubtedly even an occasional elderly postmenopausal patient in whom the ovaries should be left and also now and then a patient under 40 who should have them removed. The patient who sincerely fears for loss of libido should not have oophorectomy—except in case of clear-cut necessity—regardless of age. In the patient with cancerphobia or a family history of cancer, oophorectomy should be done regardless of whether she is near the menopause.

Provided that the ovaries appear normal, that there is no history of carcinoma, and that the risk entailed has been clarified for the patient before operation, the ovaries can usually be conserved.

It is not always easy to decide whether the ovaries are normal. Naturally, the greater the surgeon's familiarity and experience with ovarian disease the less often will the issue be in doubt. Perhaps there is a place for routine biopsy by wedge resection of the ovaries in cases in which it is planned not to remove them. Some ovarian carcinomas have occurred within a year or two of the initial pelvic operation; this suggests that they may well have been present at the time of hysterectomy.

For physicians who feel that evidence concerning functional activity in postmenopausal ovaries is lack-

ing and that the risk of carcinoma warrants routine removal of ovaries, the age of the patient should not be of great moment since a 35-year-old woman free of ovarian disease has a greater chance of getting carcinoma of the ovary than an older woman with normal ovaries.[1] Statistically, it is just as reasonable to remove both breasts in all women at age 40, when these structures have no further physiological function but have a greater danger of carcinoma than all gynecological cancers combined.

The term *routine*, applied either to conservation or to removal of ovaries, has no place in our present policy on hysterectomy for benign disorders. The most favorable results will probably be achieved by pondering the individual merits of the procedure in each case.

6221 Wilshire Boulevard, Los Angeles 48.

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